EN

ZC - 16DI8DO

CANopen I/O Module
16 Digital Input
8 Digital Output
Or
8 Counters (32 bit)
8 Digital input
8 Digital output

User Manual

Contents:

Features
PDOs
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PDOs MAPPING

OBJECTS FOR DEFAULT MAPPING				
PDO NR	COB-ID	MAPPED OBJECTS	INDEX	SUBINDEX
RPDO 1	0x200 + NodeId	Digital Input [1..8]	0x6200	1
TPDO 1	0x40000180 + NodeId	Digital Input [1..8]	0x6000	1
		Digital Input [9..16]	0x6000	2
		Overflow counter [1..8]	0x6000	3
TPDO 5	0x40000280 + NodeId	Counter 1 value	0x2210	1
		Counter 2 value	0x2210	2
TPDO 6	0x40000380 + NodeId	Counter 3 value	0x2210	3
		Counter 4 value	0x2210	4
TPDO 7	0x40000480 + NodeId	Counter 5 value	0x2210	5
		Counter 6 value	0x2210	6
TPDO 8	0x40000300 + NodeId	Counter 7 value	0x2210	7
		Counter 8 value	0x2210	8

Note that TPDO COB-ID must starts with 0x4

FEATURES

TECHNICAL DATA	
Baud rate	20, 50, 125, 250, 500, 800, 1000 Kbits/s
Counters Nr/Type	8 (32 bit) from input 1..8
Max frequency for Counters	10 kHz
Typical ON/OFF delay	1 ms (with filter disabled) for inputs 1.25 ms for outputs
CANopen TECHNICAL DATA	
NMT	SLAVE
ERROR CONTROL	NODE GUARDING
NODE ID	HW SWITCH OR SOFTWARE
NUMBER OF PDO	5 TX, 1 RX
PDO MODES	Event Triggered, Sync (cyclic), Sync (acyclic)
PDO MAPPING	VARIABLE
PDO LINKING	SUPPORTED
NUMBER OF SDO	1 SERVER
ERROR MESSAGE	YES
SUPPORTED APPLICATION LAYER	CiA 301 v4.02
SUPPORTED PROFILE	CiA 401 v2.01

EMERGENCY MESSAGE

The Emergency message is composed by:
2 bytes of EEC (Emergency Error Code)
1 byte of ER (Error register)
4 bytes of MEF (Manufacturer Error Filed Object 0x1002)

EMERGENCY MESSAGE						
BYTE 0	BYTE 1	**BYTE 2**	BYTE 3	BYTE 4	**BYTE 5**	BYTE 6
EEC		ER	**MEF**			

EEC (Emergency Error Code)	
CODE	DESCRIPTION
0x0000	No Error
0x1000	Generic error
0x4201	CPU Temperature over T_HIGH_HIGH
0x4202	CPU Temperature over T_HIGH
0x4203	CPU Temperature under T_LOW
0x8110	Communication Can Overrun
0x8120	Error Passive
0x8130	Life Guard Error
0x8140	Recovered From Bus Off
0xFF20	CPU Error
0xFF30	Vext For outputs not found / SPI Communication Error
0xFF50	Output Fail

ER (Error Register)							
BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT1	BIT 0
Generic	0	0	Temperature	Communication	0	0	Manifacture

Where if the bit is 0 means no error

TPDO TRANSMISSIONS TYPE SUPPORTED

OBJECT VALUE 0x180x sub 2	TRANSMISSION TYPE
0	Synchronous - acyclic
From 1 to 240	Synchronous - cyclic
255	Asynchronous

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MANUFACTURER SPECIFIC PROFILE AREA

OBJECT 0x2001 NODE ADDRESS

If Hardware switches are in "from memory" mode the node address is selectable by object 0x2001.

NODE ADDRESS (Object 0x2001)	
OBJECT VALUE	DESCRIPTION
0..127	Node Address

OBJECT 0x2002 Baud Rate

If Hardware switches are in "from memory" mode the baud rate is selectable by object 0x2002.

BAUD RATE (Object 0x2002)	
OBJECT VALUE	DESCRIPTION
1	20 Kbit/s
2	50 Kbit/s
3	125 Kbit/s
4	250 Kbit/s
5	500 Kbit/s
6	800 Kbit/s
7	1 Mbit/s

OBJECT 0x2030 CPU TEMPERATURE

Object can be used for monitoring the CPU temperature. The HOT STOP Temperature sends in pre-operational the station.

The HOT ERROR and the COLD ERROR Temperature sends the Emergency Object.

The Object is Read Only.

CPU TEMPERATURE (Object 0x2030)	
SUBINDEX	DESCRIPTION
1	Actual Temperature [°C/10]
2	Temperature for HOT STOP ERROR [°C/10] 95.0°C
3	Temperature for HOT ERROR [°C/10] 90.0°C
4	Temperature for COLD ERROR [°C/10] -25.0°C

OBJECT 0x2051 CPU COMMAND

Object is used to send commands to the station module.

CPU COMMAND (OBJECT 0x2051)	
COMMAND CODE	DESCRIPTION
0x5C0n	Force the preset value (object 0x2211) for counter n
0x5D0n	Force the reset for counter n
0x5E0n	Force the overflow reset (object 0x6000 sub 4) for counter n

OBJECT 0x2200 Filters Parameters

Object is used to customize the input filter.

CPU COMMAND (OBJECT 0x2051)	
SUBINDEX	DESCRIPTION
1	Samples Number for filter (default 40)
2	Counter threshold for high level (default 20)
3	Counter threshold for low level (default 20)

For a high level sample the filter counter is incremented, otherwise for a low level the filter counter is decremented.
When the filter counter is greater or equal subindex2 the input is stated "high".
When the filter counter is lower or equal subindex3 the input is stated "low".
In beetween subindex2 and subindex3 no state is asserted (dead zone).
Note that the filter can be disabled by selecting:
Subindex 1 = 1
Subindex 2 = 0
Subindex 3 = 0

OBJECT 0x2210 Digital Counters

Object 0x2210 Stores the values of the 8 counters in 32 bit format.

DIGITAL COUNTERS (OBJECT 0x2210)	
SUBINDEX	DESCRIPTION
1	Counter 1 Value
2	Counter 2 Value
3	Counter 3 Value
4	Counter 4 Value
5	Counter 5 Value
6	Counter 6 Value
7	Counter 7 Value
8	Counter 8 Value

OBJECT 0x2210 Digital Counters

Object 0x2210 Stores the values of the 8 counters in 32 bit format.

DIGITAL COUNTERS (OBJECT 0x2210)	
SUBINDEX	DESCRIPTION
1	Preset Counter 1 Value
2	Preset Counter 2 Value
3	Preset Counter 3 Value
4	Preset Counter 4 Value
5	Preset Counter 5 Value
6	Preset Counter 6 Value
7	Preset Counter 7 Value
8	Preset Counter 8 Value

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LED DESCRIPTION

SERVICE LED DESCRIPTION		
LED	**STATE**	**DESCRIPTION**
RUN	BLINKING	Pre-operational mode
	SINGLE FLASH	Stop mode
	ON	Operational mode
ERROR	SINGLE FLASH	At least one error counter has reached or exceeded the warning level
	DOUBLE FLASH	Guard Event
	TRIPLE FLASH	The SYNC hasn't received within the configurated communication cycle time out period
	ON	The Can controller is BUS OFF
	OFF	No error
FAIL	ON/BLINKING	NOT FOUND Vext for Outputs /Data receiving
POWER	ON	Power Supply

INPUT/OUTPUT LED DESCRIPTION		
LED	**STATE**	**DESCRIPTION**
1..8	ON	Input [1..8] is high
	OFF	Input [1..8] is low
9..16	ON	Input [9..16] is high
	OFF	Input [9..16] is low
1O..8O	ON	Output [1..8] is high
	OFF	Ouput [1..8] is low

DIP SWITCH CONFIGURATION

DIP-SWITCH SETTINGS
(CANopen PROTOCOL)

KEY
ON

BAUD RATE		ADDRESS	
1 2 3 SOFTWARE PROGRAMMED		4 5 6 7 8 9 10	SOFTWARE PROGRAMMED
	20 kbps	0000000	ADD. 001
	50 kbps	0000001	ADD. 002
	125 kbps	0000010	ADD. 003
	250 kbps	0000011	ADD. 004
	500 kbps	0000100	ADD. 005
	800 kbps	0000101	ADD. 006
	1 Mbps	1111111	ADD. 127

DIGITAL INPUT MANAGEMENT

OBJECT 0x6003 INPUT FILTER CONFIGURATION

FILTER CONSTANT INPUT (Object 0x6003)	
SUBINDEX	DESCRIPTION
1	FILTER ENABLED FOR INPUT [1..8]
2	FILTER ENABLED FOR INPUT [9..16]

COUNTER MODE ON/OFF

If the value of object 0x6003 subindex 1 is "0" all inputs from 1 to 8 are configured in counter mode (counter mode switched on).

If the value of object 0x6003 subindex 1 is not equal to "0" The counter mode is switched off.

OBJECT 0x6005 INTERRUPT ENABLE

If the value is "1" the station can generate asynchronous TxPDO (DEFAULT).
If the value is "0" the station can't generate asynchronous TxPDO.

OBJECT 0x6007 INTERRUPT MASK LOW TO HIGH

DIGITAL INTERRUPT MASK LOW TO HIGH (OBJECT 0x6007)	
SUBINDEX	DESCRIPTION
1	Interrupt mask on rising edsge input [1..8]
2	Interrupt mask on rising edsge input [9..16]
3	Interrupt mask for counters overflow

For subindex form 1 to 3 if value is "1" than the generation of TxPDO on rising edge is enabled.

If subindex 4 value is "1" the generation of TxPDO on all 8 counters overflows is enabled.

OBJECT 0x6008 INTERRUPT MASK HIGH TO LOW

DIGITAL INTERRUPT MASK LOW TO HIGH (OBJECT 0x6007)	
SUBINDEX	DESCRIPTION
1	Interrupt mask on falling edsge input [1..8]
2	Interrupt mask on falling edsge input [9..16]

For subindex form 1 to 3 if value is "1" than the generation of TxPDO on falling edge is enabled.

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DIGITAL OUTPUT MANAGEMENT

OBJECT 0x6200
8 BIT OUTPUT

8 BIT OUTPUT (Object 0x6200)	
SUBINDEX	DESCRIPTION
1	OUTPUT [1..8] VALUE

OBJECT 0x6206
ERROR MODE OUTPUT

ERROR MODE OUTPUT (Object 0x6206)	
SUBINDEX	DESCRIPTION
1	OUTPUT [1..8] ERROR MODE

In case of communication error:
0 = the output keeps the last value
1 = the output is loaded with object 0x6207

OBJECT 0x6207
ERROR VALUE OUTPUT

ERROR VALUE OUTPUT (Object 0x6207)	
SUBINDEX	DESCRIPTION
1	OUTPUT [1..8] ERROR VALUE

The object stores the outputs values to load in fault case (only if the Error mode output corresponding bit value is "1").

OBJECT 0x6220
SINGLE BIT OUTPUT

ERROR VALUE OUTPUT (Object 0x6207)	
SUBINDEX	DESCRIPTION
1	OUTPUT 1 VALUE
2	OUTPUT 2 VALUE
3	OUTPUT 3 VALUE
4	OUTPUT 4 VALUE
5	OUTPUT 5 VALUE
6	OUTPUT 6 VALUE
7	OUTPUT 7 VALUE
8	OUTPUT 8 VALUE

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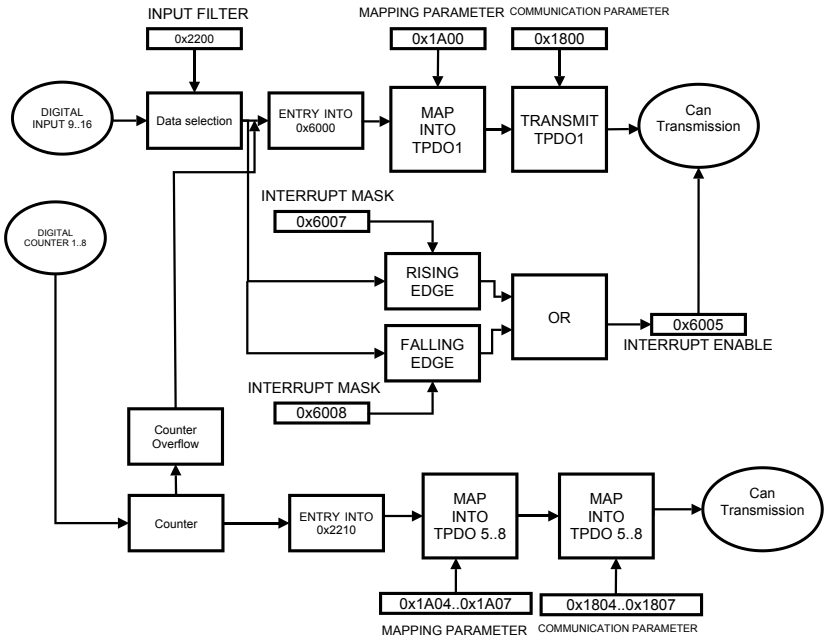
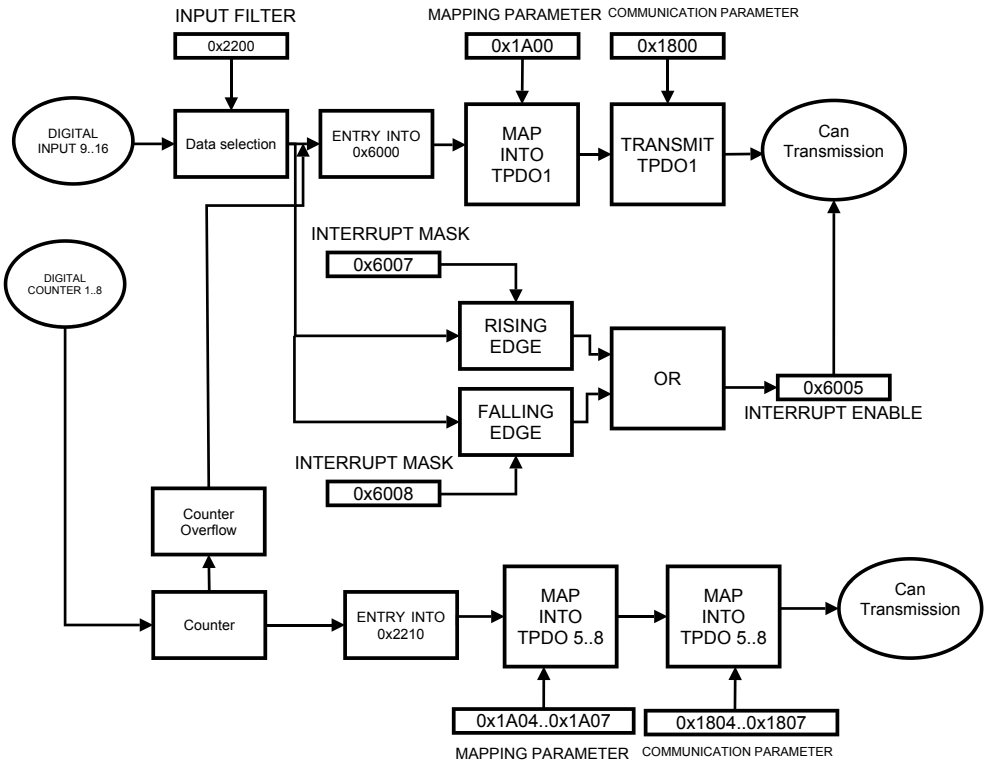
FUNCTIONAL DIAGRAM
COUNTER MODE OFF (DEFAULT)



FUNCTIONAL DIAGRAM
COUNTER MODE ON (Subindex 1 Object 0x6003 = “0”)



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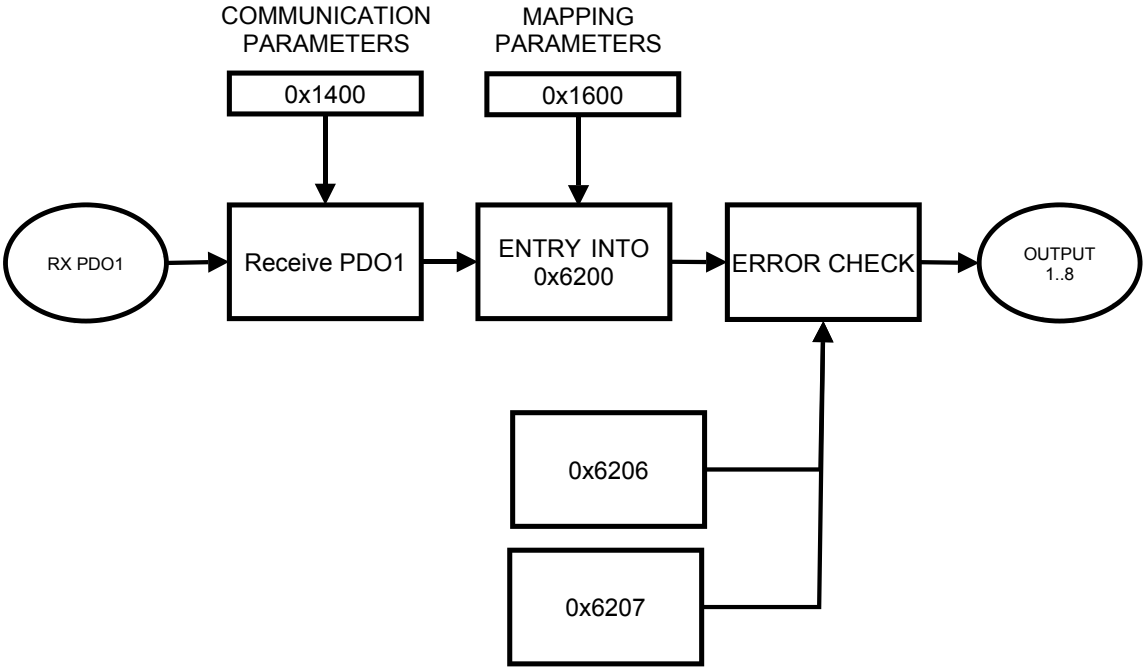
FUNCTIONAL DIAGRAM
DIGITAL OUTPUT



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OBJECT DICTIONARY

COMMUNICATION PROFILE AREA

INDEX	SUB INDEX	NAME	DESCRIPTION	TYPE	ACCESS	DEFAULT
0x1000	0	Device Type	Device Type (Profile 401 = 0x191)	UNSIGNED 32	RO	0x00030191
0x1001	0	Error register	Error register (DS 401)	UNSIGNED 8	RO	0
0x1002	0	Manufacturer Status Register	Status Register	UNSIGNED 32	RO	0
0x1005	0	SYNC COB-ID	The device consumes the SYNC message	UNSIGNED 32	RW	0x80
0x1006	0	Communication Window Length	Sync interval [us]	UNSIGNED 32	RW	0
0x1007	0	Synchronous Window Length	Time window [us] for the PDO transmission after the SYNC	UNSIGNED 32	RW	0
0x1008	0	Manufacturer Device name	Device name	VISIBLE STRING	RO	"ZC-16DI8DO"
0x1009	0	Manufacturer Hardware Version	Hardware version	VISIBLE STRING	RO	“SC000000”
0x100A	0	Manufacturer Software Version	Software version	VISIBLE STRING	RO	"SW001190"
0x100C	0	Guard Time	Guard Time [ms]	UNSIGNED 16	RW	0
0x100D	0	Life Time Factor	Max delay between two guarding telegrams = Guard_Time*Life_Time_Factor	UNSIGNED 8	RW	0
0x1010	0	Store Parameters	Max Subindex Number		RO	4
	1	Save All Parameters	Store not volatile parameters (Write in ASCII “save” for store process MSB 0x65766173 LSB)	UNSIGNED 32	RW	1
	2	Save Communication Parameters	Store not volatile parameters (Write in ASCII “save” for store process MSB 0x65766173 LSB)	UNSIGNED 32	RW	1
	3	Save Application Parameters	Store not volatile parameters (Write in ASCII “save” for store process MSB 0x65766173 LSB)	UNSIGNED 32	RW	1
	4	Save Manufacturer Parameters	Store not volatile parameters (Write in ASCII “save” for store process MSB 0x65766173 LSB)	UNSIGNED 32	RW	1
0x1011	0	Restore Default	Max Subindex Number	UNSIGNED 8	RO	4
	1	Restore All Parameters	Restore not volatile parameters (Write in ASCII “load” for load process MSB 0x64616F6C LSB)	UNSIGNED 32	RW	0
	2	Restore Communication Parameters	Restore not volatile parameters (Write in ASCII “load” for load process MSB 0x64616F6C LSB)	UNSIGNED 32	RW	0
	3	Restore Application Parameters	Restore not volatile parameters (Write in ASCII “load” for load process MSB 0x64616F6C LSB))	UNSIGNED 32	RW	0

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INDEX	SUB INDEX	NAME	DESCRIPTION	TYPE	ACCESS	DEFAULT
	4	Restore Manufactures Parameters	Restore not volatile parameters (Write in ASCII “load” for load process MSB 0x64616F6C LSB)	UNSIGNED 32	RW	0
0x1014	0	COB-ID Emergency Object	COB-ID for Emergency Object	UNSIGNED 32	RO	NODEID+0x80
0x1018	0	Identity Object	Max Subindex Number	UNSIGNED 8	RO	4
	1	Vendor ID	Seneca srl	UNSIGNED 32	RO	0x00000249
	2	Product Code	ZC-16DI8DO Machine ID Code	UNSIGNED 32	RO	0x00000022
	3	Revision Number	Revision	UNSIGNED 32	RO	0
	4	Serial Number	Serial Number Code	UNSIGNED 32	RO	0
0x1200	0	Server SDO Parameters	Max Subindex Number	UNSIGNED 8	RO	2
	1	Receive SDO COB-ID	COB-ID of Receive SDO	UNSIGNED 32	RO	NODEID + 0x600
	2	Transmit SDO COB-ID	COB-ID of Transmit SDO	UNSIGNED 32	RO	NODEID + 0x580
0x1400	0	Receive PDO1 Communication Parameters	Max Subindex Number	UNSIGNED 8	RO	3
	1	COB-ID	COB-ID of TxPDO1	UNSIGNED 32	RW	NODEID + 0x200
	2	Transmission Type	Transmission Type for RxPDO1 0x00 = Synchronous - acyclic 0x01 to 0xF0 = Synchronous-cyclic 0xFF = Asynchronous	UNSIGNED 8	RW	0xFF
	3	Inhibit Time	Not used in Rx PDO	UNSIGNED 16	RW	0x0000
0x1600	0	Receive PDO1 Communication Parameters	Max Subindex Number	UNSIGNED 8	RO	1
	1	Object NR1	First Object (default:Output 1..8)	UNSIGNED 32	RW	0x62000108 Object = 0x6200 subindex = 1 Length = 8 bit
0x1800	0	Transmit PDO1 Communication Parameters	Max Subindex Number	UNSIGNED 8	RO	3
	1	COB-ID	COB-ID of TxPDO1	UNSIGNED 32	RW	NODEID + 0x40000180
	2	Transmission Type	Transmission Type for TxPDO1 0x00 = Synchronous - acyclic 0x01 to 0xF0 = Synchronous-cyclic 0xFF = Asynchronous	UNSIGNED 8	RW	0xFF
	3	Inhibit Time	Min. delay for the next PDO (ms/10)	UNSIGNED 16	RW	0x0000
0x1804	0	Transmit PDO5 Communication Parameters	Max Subindex Number	UNSIGNED 8	RO	3
	1	COB-ID	COB-ID of TxPDO5	UNSIGNED 32	RW	NODEID + 0x40000280
	2	Transmission Type	Transmission Type for TxPDO1 0x00 = Synchronous - acyclic 0x01 to 0xF0 = Synchronous-cyclic 0xFF = Asynchronous	UNSIGNED 8	RW	0x01
	3	Inhibit Time	Min. delay for the next PDO (ms/10)	UNSIGNED 16	RW	0x0000

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INDEX	SUB INDEX	NAME	DESCRIPTION	TYPE	ACCESS	DEFAULT
0x1805	0	Transmit PDO6 Communication Parameters	Max Subindex Number	UNSIGNED 8	RO	3
	1	COB-ID	COB-ID of TxPDO6	UNSIGNED 32	RW	NODEID + 0x40000380
	2	Transmission Type	Transmission Type for TxPDO1 0x00 = Synchronous - acyclic 0x01 to 0xF0 = Synchronous-cyclic 0xFF = Asynchronous	UNSIGNED 8	RW	0x01
	3	Inhibit Time	Min. delay for the next PDO (ms/10)	UNSIGNED 16	RW	0x0000
0x1806	0	Transmit PDO7 Communication Parameters	Max Subindex Number	UNSIGNED 8	RO	3
	1	COB-ID	COB-ID of TxPDO7	UNSIGNED 32	RW	NODEID + 0x40000480
	2	Transmission Type	Transmission Type for TxPDO1 0x00 = Synchronous - acyclic 0x01 to 0xF0 = Synchronous-cyclic 0xFF = Asynchronous	UNSIGNED 8	RW	0x01
	3	Inhibit Time	Min. delay for transmit the next TxPDO (ms/10)	UNSIGNED 16	RW	0x0000
0x1807	0	Transmit PDO8 Communication Parameters	Max Subindex Number	UNSIGNED 8	RO	3
	1	COB-ID	COB-ID of TxPDO8	UNSIGNED 32	RW	NODEID + 0x40000300
	2	Transmission Type	Transmission Type for TxPDO1 0x00 = Synchronous - acyclic 0x01 to 0xF0 = Synchronous-cyclic 0xFF = Asynchronous	UNSIGNED 8	RW	0x01
	3	Inhibit Time	Min. delay for the next PDO (ms/10)	UNSIGNED 16	RW	0x0000
0x1A00	0	Transmit PDO1 Mapping	Max Subindex Number	UNSIGNED 8	RO	3
	1	Object NR1	First Object (default: Input 1..8)	UNSIGNED 32	RW	0x60000108 Object = 0x6000 subindex = 1 Length = 8 bit
	2	Object NR2	Second Object (default: Input 9..16)	UNSIGNED 32	RW	0x60000208 Object = 0x6000 subindex = 2 Length = 8 bit
	3	Object NR3	Fourth Object (default: Counter 1..8 Overflow)	UNSIGNED 32	RW	0x60000308 Object = 0x6000 subindex = 3 Length = 8 bit
0x1A04	0	Transmit PDO5 Mapping	Max Subindex Number	UNSIGNED 8	RO	2
	1	Object NR1	First Object (default: Counter 1)	UNSIGNED 32	RW	0x22100120 Object = 0x2210 subindex = 1 Length = 32 bit
	2	Object NR2	Second Object (default: Counter 2)	UNSIGNED 32	RW	0x22100220 Object = 0x2210 subindex = 2 Length = 32 bit

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INDEX	SUB INDEX	NAME	DESCRIPTION	TYPE	ACCESS	DEFAULT
0x1A05	0	Transmit PDO6 Mapping	Max Subindex Number	UNSIGNED 8	RO	2
	1	Object NR1	First Object (default: Counter 3)	UNSIGNED 32	RW	0x22100320 Object = 0x2210 subindex = 3 Length = 32 bit
	2	Object NR2	Second Object (default: Counter 4)	UNSIGNED 32	RW	0x22100420 Object = 0x2210 subindex = 4 Length = 32 bit
0x1A06	0	Transmit PDO7 Mapping	Max Subindex Number	UNSIGNED 8	RO	2
	1	Object NR1	First Object (default: Counter 5)	UNSIGNED 32	RW	0x22100520 Object = 0x2210 subindex = 5 Length = 32 bit
	2	Object NR2	Second Object (default: Counter 6)	UNSIGNED 32	RW	0x22100620 Object = 0x2210 subindex = 6 Length = 32 bit
0x1A07	0	Transmit PDO8 Mapping	Max Subindex Number	UNSIGNED 8	RO	2
	1	Object NR1	First Object (default: Counter 7)	UNSIGNED 32	RW	0x22100720 Object = 0x2210 subindex = 7 Length = 32 bit
	2	Object NR2	Second Object (default: Counter 8)	UNSIGNED 32	RW	0x22100820 Object = 0x2210 subindex = 8 Length = 32 bit

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MANUFACTURER SPECIFIC PROFILE AREA

INDEX	SUB INDEX	NAME	DESCRIPTION	TYPE	ACCESS	DEFAULT
0x2001	0	Module Address	Station Address (only if dip switch 4,5,6,7,8,9,10 are OFF)	UNSIGNED 8	RW	127
0x2002	0	Buad Rate	Station Baud Rate (only if dip switch 1,2,3 are OFF) 1 = 20Kbps 2 = 50Kbps 3 = 125Kbps 4 = 250Kbps 5 = 500Kbps 6 = 800Kbps 7 = 1Mbps	UNSIGNED 8	RW	7
0x2030	0	Device Temperature	Max Subindex Number	UNSIGNED 8	RO	4
	1	Internal Temperatue	Station internal Temperature [°C/10]	INTEGER 16	RO	0
	2	Hi Hi Temperature	Critical Hot Temperature (All operations Stop)[°C/10]	INTEGER 16	RO	950
	3	Hi Temperature	Warning for Too Hot Temperature [°C/10]	INTEGER 16	RO	900
	4	Lo Temperature	Critical Low Temperature (All operations Stop)[°C/10]	INTEGER 16	RO	-250
0x2051	0	CPU Command	Command to execute Supported commands are: 0x5Cnn Force preset for counter mask nn 0x5Dnn Force reset for counter mask nn 0x5Enn Force overflow for counter mask nn	UNSIGNED 16	RW	0
0x2052	0	Aux Command	Reserved	UNSIGNED 16	RW	0
0x2200	0	Input Filter Parameter	Max Subindex Number	UNSIGNED 8	RO	3
	1	Filter Length	Number of samples to evaluate	UNSIGNED 8	RW	40
	2	Counter threshold for high level	If counter >= threshold_high input is stated “high”	UNSIGNED 8	RW	20
	3	Counter threshold for high level	If counter <= threshold_low input is stated “low”	UNSIGNED 8	RW	20

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INDEX	SUB INDEX	NAME	DESCRIPTION	TYPE	ACCESS	DEFAULT
0x2210	0	Input Counters	Max Subindex Number	UNSIGNED 8	RO	8
	1	Counter 1 Value	Counter 1 value (Only if Filter for inputs 1..8 is disabled)	UNSIGNED 32	RO	0
	2	Counter 2 Value	Counter 2 value (Only if Filter for inputs 1..8 is disabled)	UNSIGNED 32	RO	0
	3	Counter 3 Value	Counter 3 value (Only if Filter for inputs 1..8 is disabled)	UNSIGNED 32	RO	0
	4	Counter 4 Value	Counter 4 value (Only if Filter for inputs 1..8 is disabled)	UNSIGNED 32	RO	0
	5	Counter 5 Value	Counter 5 value (Only if Filter for inputs 1..8 is disabled)	UNSIGNED 32	RO	0
	6	Counter 6 Value	Counter 6 value (Only if Filter for inputs 1..8 is disabled)	UNSIGNED 32	RO	0
	7	Counter 7 Value	Counter 7 value (Only if Filter for inputs 1..8 is disabled)	UNSIGNED 32	RO	0
	8	Counter 8 Value	Counter 8 value (Only if Filter for inputs 1..8 is disabled)	UNSIGNED 32	RO	0
0x2211	0	Preset for Input Counters	Max Subindex Number	UNSIGNED 8	RO	8
	1	Counter 1 Preset Value	Counter 1 preset value	UNSIGNED 32	RW	0
	2	Counter 2 Preset Value	Counter 2 preset value	UNSIGNED 32	RW	0
	3	Counter 3 Preset Value	Counter 3 preset value	UNSIGNED 32	RW	0
	4	Counter 4 Preset Value	Counter 4 preset value	UNSIGNED 32	RW	0
	5	Counter 5 Preset Value	Counter 5 preset value	UNSIGNED 32	RW	0
	6	Counter 6 Preset Value	Counter 6 preset value	UNSIGNED 32	RW	0
	7	Counter 7 Preset Value	Counter 7 preset value	UNSIGNED 32	RW	0
	8	Counter 8 Preset Value	Counter 8 preset value	UNSIGNED 32	RW	0
0x2520	0	Output 1..8 Status	Max Subindex Number	UNSIGNED 8	RO	1
	1	Output Status	1 = Output status ERROR 0 = Output status OK	UNSIGNED 8	RO	0
0x2521	0	Output 1..8 Fail type	Max Subindex Number	UNSIGNED 8	RO	1
	1	Fail Type	Reserved	UNSIGNED 8	RW	0

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STANDARD DEVICE PROFILE AREA

INDEX	SUB INDEX	NAME	DESCRIPTION	TYPE	ACCESS	DEFAULT
0x6000	0	8 bit Digital Input / Counter 1 overflow	Max Subindex Number	UNSIGNED 8	RO	3
	1	Input [1..8] Value	Read input [1..8] value	UNSIGNED 8	RO	0
	2	Input [9..16] Value	Read input [9..16] value	UNSIGNED 8	RO	0
	3	Counter [1..8] Overflow	Overflow Status Counter [1..8]	UNSIGNED 8	RO	0
0x6003	0	Filter Mask enable	Max Subindex Number	UNSIGNED 8	RO	2
	1	Input [1..8] Filter Mask Enable	Input [1..8] Filter enable Mask bit 0 = Filter disabled Mask bit 1 = Filter enabled	UNSIGNED 8	RW	0xFF
	2	Input [9..16] Filter Mask Enable	Input [9..16] Filter enable Mask bit 0 = Filter disabled Mask bit 1 = Filter enabled	UNSIGNED 8	RW	0xFF
0x6005	0	Global Interrupt Enabled	0 = TxPDO Asynchronous disabled 1 = TxPDO Asynchronous enabled	UNSIGNED 8	RW	1
0x6007	0	Interrupt Mask Low to High	Max Subindex Number	UNSIGNED 8	RO	3
	1	Input [1..8] interrupt Low to High mask enable	Input [1..8] rising interrupt mask enable Mask bit 0 = rising interrupt disabled Mask bit 1 = rising interrupt enabled	UNSIGNED 8	RW	0xFF
	2	Input [9..16] interrupt Low to High mask enable	Input [9..16] rising interrupt enable Mask bit 0 = rising interrupt disabled Mask bit 1 = rising interrupt enabled	UNSIGNED 8	RW	0xFF
	3	Counter [1..8] Overflow interrupt mask enable	Counter [1..8] uprising interrupt mask enable Mask bit 0 = rising interrupt disabled Mask bit 1 = rising interrupt enabled	UNSIGNED 8	RW	0xFF
0x6008	0	Interrupt Mask High to Low	Max Subindex Number	UNSIGNED 8	RO	2
	1	Input [1..8] interrupt High to Low mask enable	Input [1..8] falling interrupt mask enable Mask bit 0 = falling interrupt disabled Mask bit 1 = falling interrupt enabled	UNSIGNED 8	RW	0xFF
	2	Input [9..16] interrupt High to Low mask enable	Input [9..16] falling interrupt enable Mask bit 0 = falling interrupt disabled Mask bit 1 = falling interrupt enabled	UNSIGNED 8	RW	0xFF

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INDEX	SUB INDEX	NAME	DESCRIPTION	TYPE	ACCESS	DEFAULT
0x6020	0	Read Input 1 Bit	Max Subindex Number	UNSIGNED 8	RO	16
	1	Input 1 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	2	Input 2 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	3	Input 3 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	4	Input 4 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	5	Input 5 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	6	Input 6 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	7	Input 7 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	8	Input 8 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	9	Input 9 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	10	Input 10 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	11	Input 11 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	12	Input 12 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	13	Input 13 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	14	Input 14 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	15	Input 15 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
	16	Input 16 Value	0 = Input is “Low” 1 = Input is “High”	BOOLEAN	RO	0
0x6200	0	8 bit Output	Max Subindex Number	UNSIGNED 8	RO	1
	1	Output 1..8 Value	Output value	UNSIGNED 8	RW	0
0x6206	0	Error Mode Output	Max Subindex Number	UNSIGNED 8	RO	1
	1	Error Mode Output [1..8]	“1” = Load object 0x6207 value “0” = Keep last	UNSIGNED 8	RW	0xFF
0x6207	0	Error Value Output	Max Subindex Number	UNSIGNED 8	RO	1
	1	Error value Output [1..8]	Value to Load in fail case	UNSIGNED 8	RW	0x00
0x6220	0	Single Bit Output	Max Subindex Number	UNSIGNED 8	RO	8
	1	Output 1 Value	Output 1	BOOLEAN	RW	0
	2	Output 2 Value	Output 2	BOOLEAN	RW	0
	3	Output 3 Value	Output 3	BOOLEAN	RW	0
	4	Output 4 Value	Output 4	BOOLEAN	RW	0
	5	Output 5 Value	Output 5	BOOLEAN	RW	0
	6	Output 6 Value	Output 6	BOOLEAN	RW	0
	7	Output 7 Value	Output 7	BOOLEAN	RW	0
	8	Output 8 Value	Output 8	BOOLEAN	RW	0

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